

ABSTRACT OF THE DISCLOSURE

A data transmitting node and a network inter-connection node suitable for use in the home network environment. In a case of transmitting information data from a data transmitting node connected with a physical network to a receiving node connected with the physical network or another physical network, a data transmitting node transmits the control message including an IP address information of a data transmission destination, a header/channel information dependent on the physical network, and an information indicating that the information data to be transmitted according to the header/channel information is data in an upper layer of an IP layer. The information data is then transmitted to the receiving node, where the information data contains the header/channel information and data of the upper layer without IP packet encapsulation. A network inter-connection node operates similarly.

20

25

30

35